CTEH®

THE SCIENCE OF READY℠

BIOLABS FACILITY FIRE

Westlake, LA

Preliminary Daily Air Monitoring Summary

August 29, 2020

Project #113436

90043916

1.0 Introduction

On August 27, 2020 at approximately 11:00 Central Standard Time (CST), BioLabs requested that CTEH® provide air monitoring and analytical air sampling support in response to a facility fire at the Westlake, LA facility. CTEH® arrived on-site on August 27, 2020 and began real-time air monitoring at 16:00 CST. Analytical air samples for chlorine and volatile organic compounds (VOCs) were deployed throughout the community, at upwind and downwind locations. This report summarizes real-time air monitoring data collected in the work area and community from August 28, 2020 06:00 CST to August 29, 2020 06:00 CST.

2.0 Air Monitoring and Sampling Methods

CTEH® developed and implemented an Air Sampling and Analysis Plan (SAP) to document and quantify the potential release of fugitive emissions from the incident. Real-time air monitoring was conducted in accordance with three plans outlined in the SAP: Community Monitoring, Work Area Monitoring, and Site Assessment Monitoring. Community Monitoring was conducted in areas beyond the work area including residential areas and businesses. Work Area Monitoring was conducted in areas where workers were actively involved in response operations. Unlike Community and Work Area Monitoring, Site Assessment Monitoring does not necessarily represent ambient air monitoring near breathing zone level. Site Assessment may involve a variety of different monitoring tasks intended to provide information that may help to delineate the nature and extent of the release.

CTEH personnel conducted real-time air monitoring in the community and work area for chlorine (Cl_2), atmospheric flammability measured as the percentage of the lower explosive limit (%LEL), nitrogen dioxide (NO_2), oxygen (O_2), particulate matter ($PM_{2.5}$ and PM_{10}), sulfur dioxide (SO_2), and volatile organic compounds (VOCs), and using handheld instruments including RAE Systems MultiRAEs, Gastec colorimetric detection tubes, AM520s and AM510s.

All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Roaming air monitoring was generally performed in work areas in the presence of workers performing/supporting mitigation and remediation operations with handheld instruments.

3.0 Air Monitoring Results

Attachment A provides maps of the locations of handheld air monitoring locations in the community and work area. **Table 1** summarizes the results of handheld air monitoring.

Table 1: Handheld Real-Time Air Monitoring Results

Location Category	Analyte	Instrument	# of Readings	# of Detections	Range*
Community	Cl_2	Gastec #8La	9	0	< 0.5 ppm
		MultiRAE	106	1	0.1 ppm
	%LEL	MultiRAE	118	0	< 1 ppm
	NO_2	Gastec #9L	21	0	< 0.1 ppm
		MultiRAE	17	0	< 0.1 ppm
	O2	MultiRAE	40	40	20.9 %
	PM_{10}	AM510	1	1	0.013 mg/m^3
	$PM_{2.5}$	AM510	31	31	0.002 – 0.028 mg/m^3
		AM520	103	103	0.004 – 0.042 mg/m^3
	SO_2	Gastec #5Lb	38	0	< 0.01 ppm
	VOCs	MultiRAE	146	0	< 0.1 ppm
Work Area Monitoring	Cl_2	Gastec #8La	3	3	0.1 – 0.5 ppm
		MultiRAE	76	37	0.1 – 49.9 ppm
	%LEL	MultiRAE	31	0	< 1 %
	NO_2	Gastec #9L	20	0	< 0.1 ppm
		MultiRAE	4	2	0.1 – 0.3 ppm
	O_2	MultiRAE	31	31	20.9 %
	$PM_{2.5}$	AM520	63	63	0.007 – 1.867 mg/m^3
	SO_2	Gastec #5Lb	23	5	0.2 - 1 ppm
		MultiRAE	17	0	< 0.1 ppm
	VOCs	MultiRAE	59	3	1.0 ppm

* If no detection was observed, the instrument detection limit preceded by a "<" symbol is listed. These data have not undergone QAQC and should be considered preliminary at this time. †Volatile organic compounds.

4.0 Analytical Air Sampling Methodology

During this reporting period, CTEH® also deployed analytical air samples in four distinct locations in the community. Evacuated canister (Minican™) samplers were regulated to continuously collect air over a 24-hour period for analysis for VOCs by EPA method TO-15. Additionally, sampling pumps were deployed to collect chlorine samples following method NIOSH 6011. A map indicating the location of these analytical

air sampling stations is provided in **Attachment B**. **Table 3**, below, presents a summary of the cumulative summary of analytical air samples for the response.

Table 3: Cumulative Analytical Air Samples

Analysis	Count of Samples Deployed	Count of Samples Collected	Count of Results Received from Lab
SCK (Chlorine NIOSH 6011)	12	8	0
Minican (VOC TO-15 +TICS)	8	4	0

5.0 Weather Conditions

Attachment C contains wind roses depicting wind speed and direction for this reporting period. Data were acquired from the Chennault International meteorological stations. Chennault International Station is located on 3650 Sen J Bennett Johnston Ave., approximately 10 miles southeast of the incident site.

Attachment A

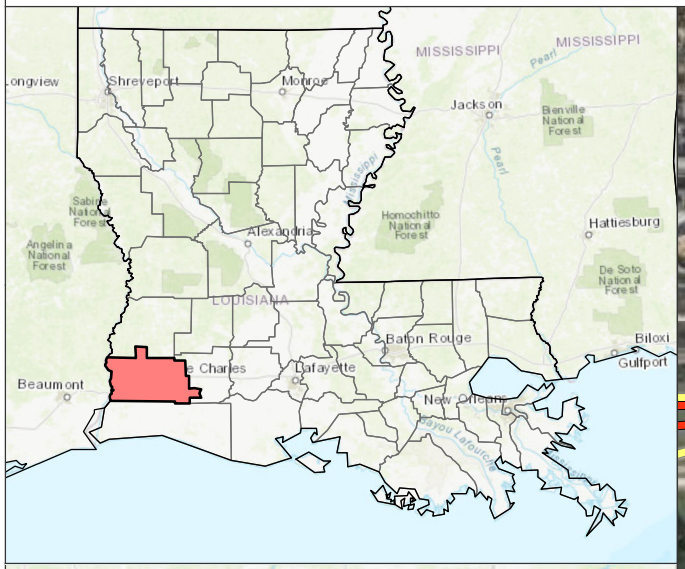
CTEH Air Monitoring Locations

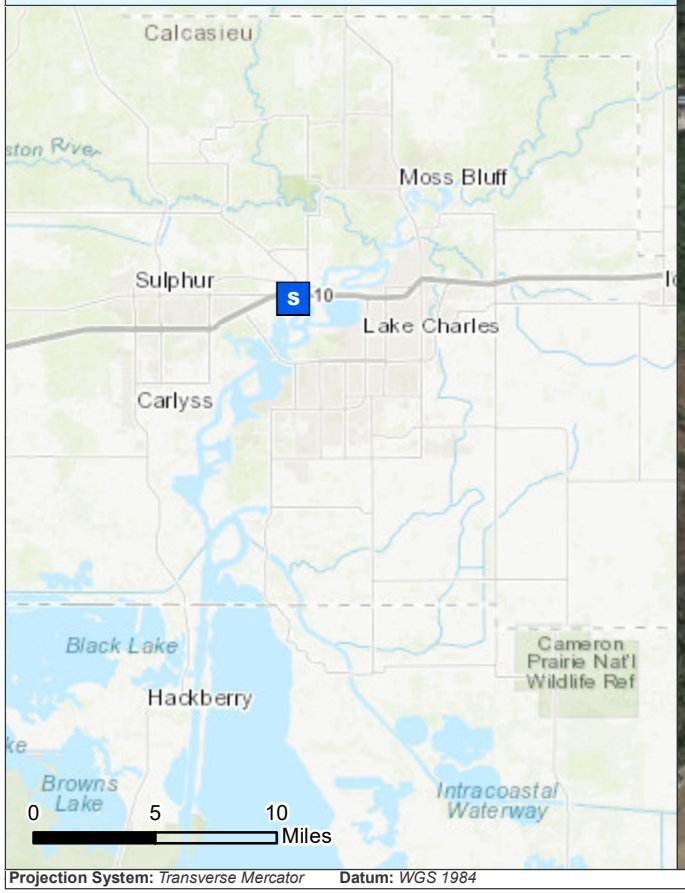
CTEH

BioLabs Fire

Site Location

Project: 111346
Client: BioLab
City: Westlake, LA
Parish: Calcasieu





Projection System: *Transverse Mercator* **Datum:** *WGS 1984*

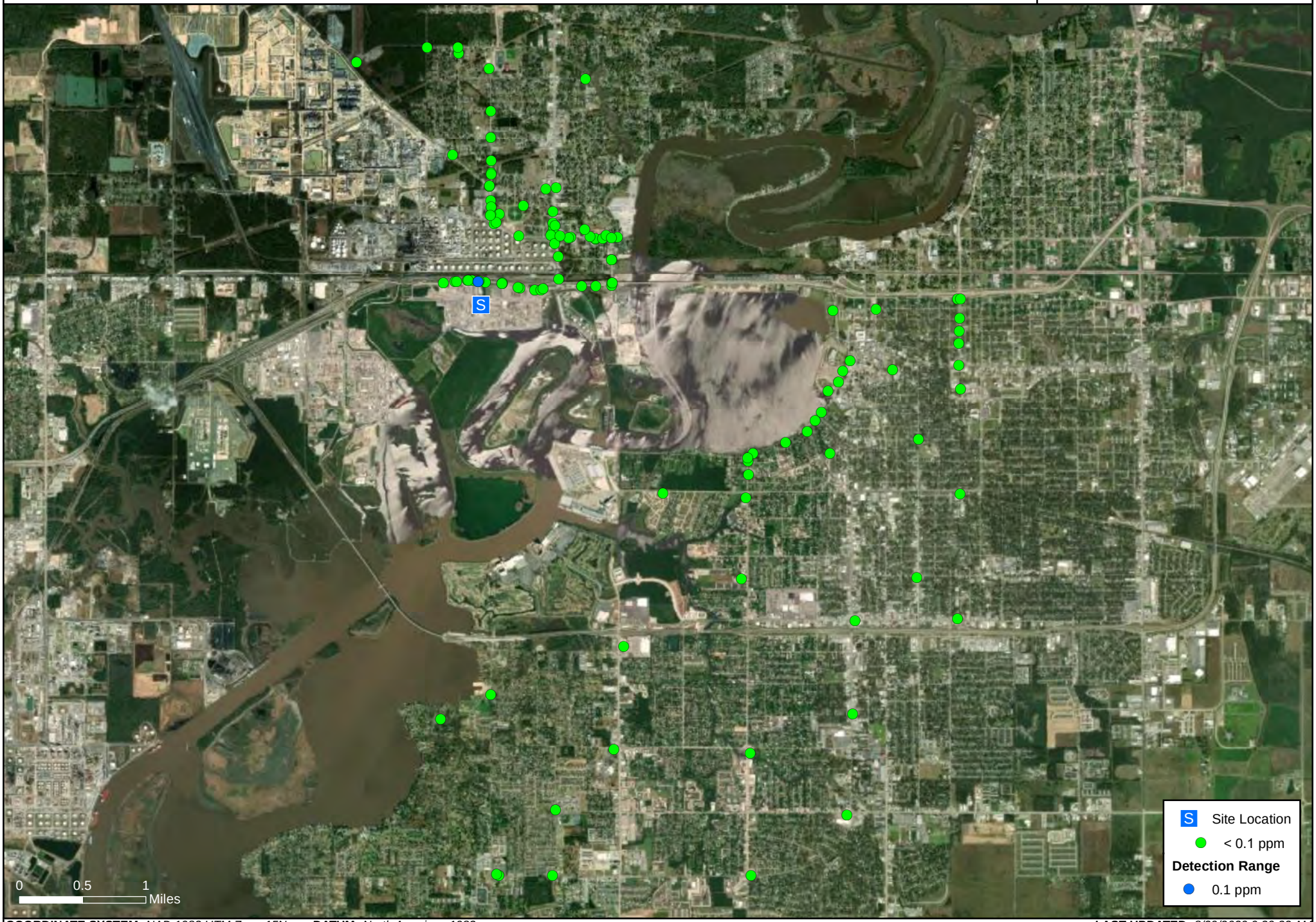
Document Name: 113436_site_location

Last Updated: *8/29/2020 10:00:29 AM*

Handheld Real-Time Community Monitoring Locations (Cl2)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu

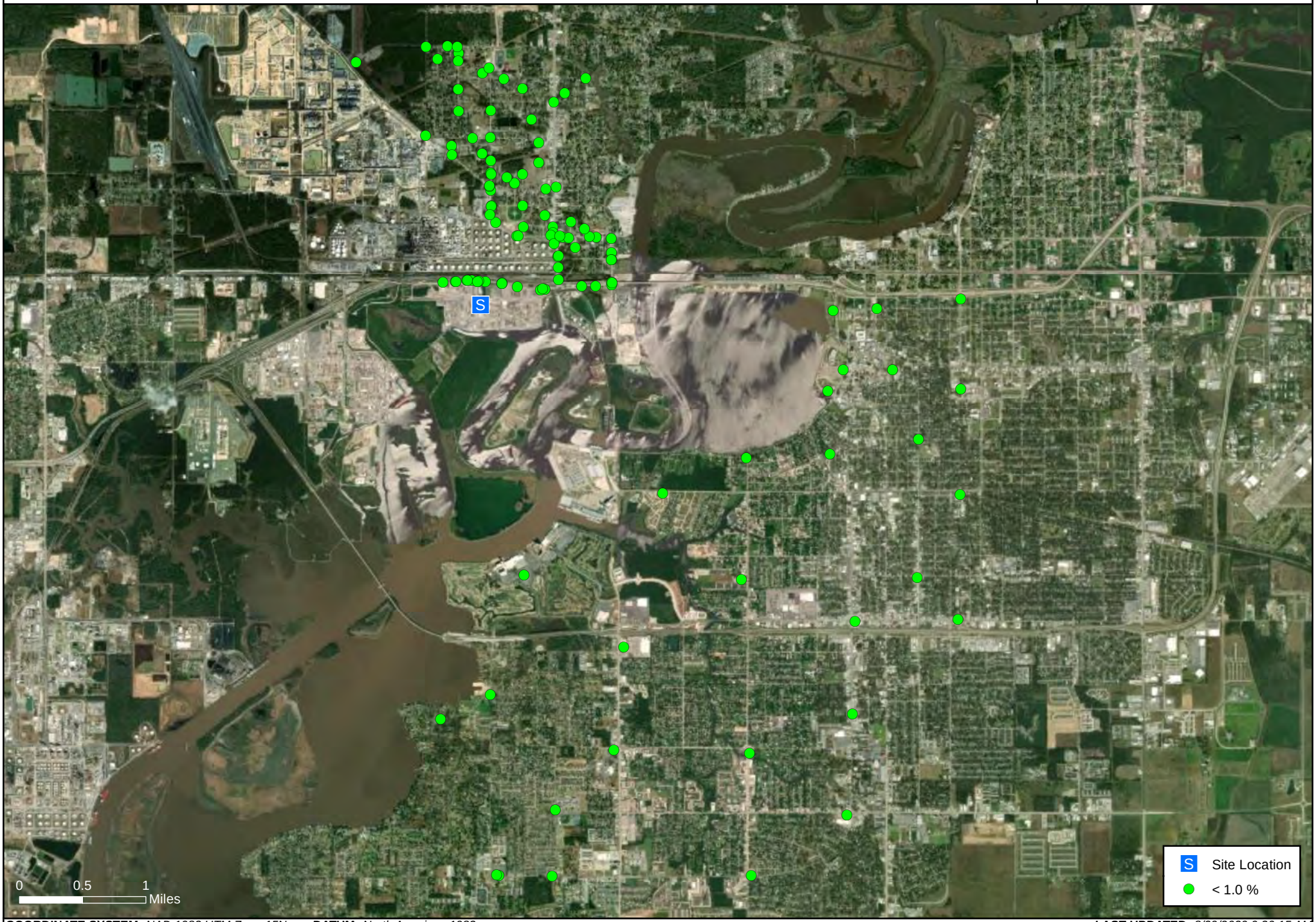


COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 9:30:32 AM*

Handheld Real-Time Community Monitoring Locations (%LEL)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu

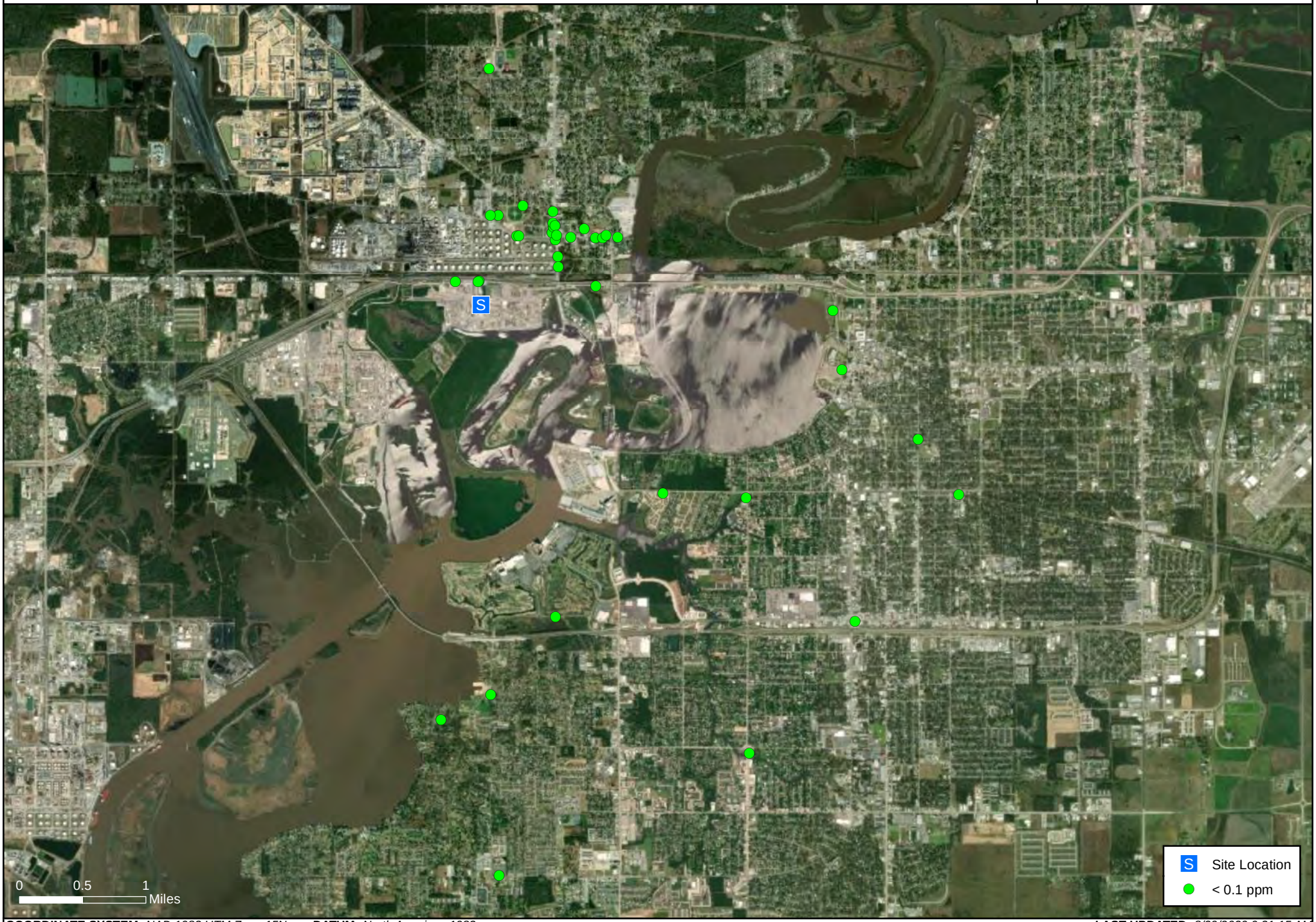


COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 9:36:15 AM*

Handheld Real-Time Community Monitoring Locations (NO2)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu

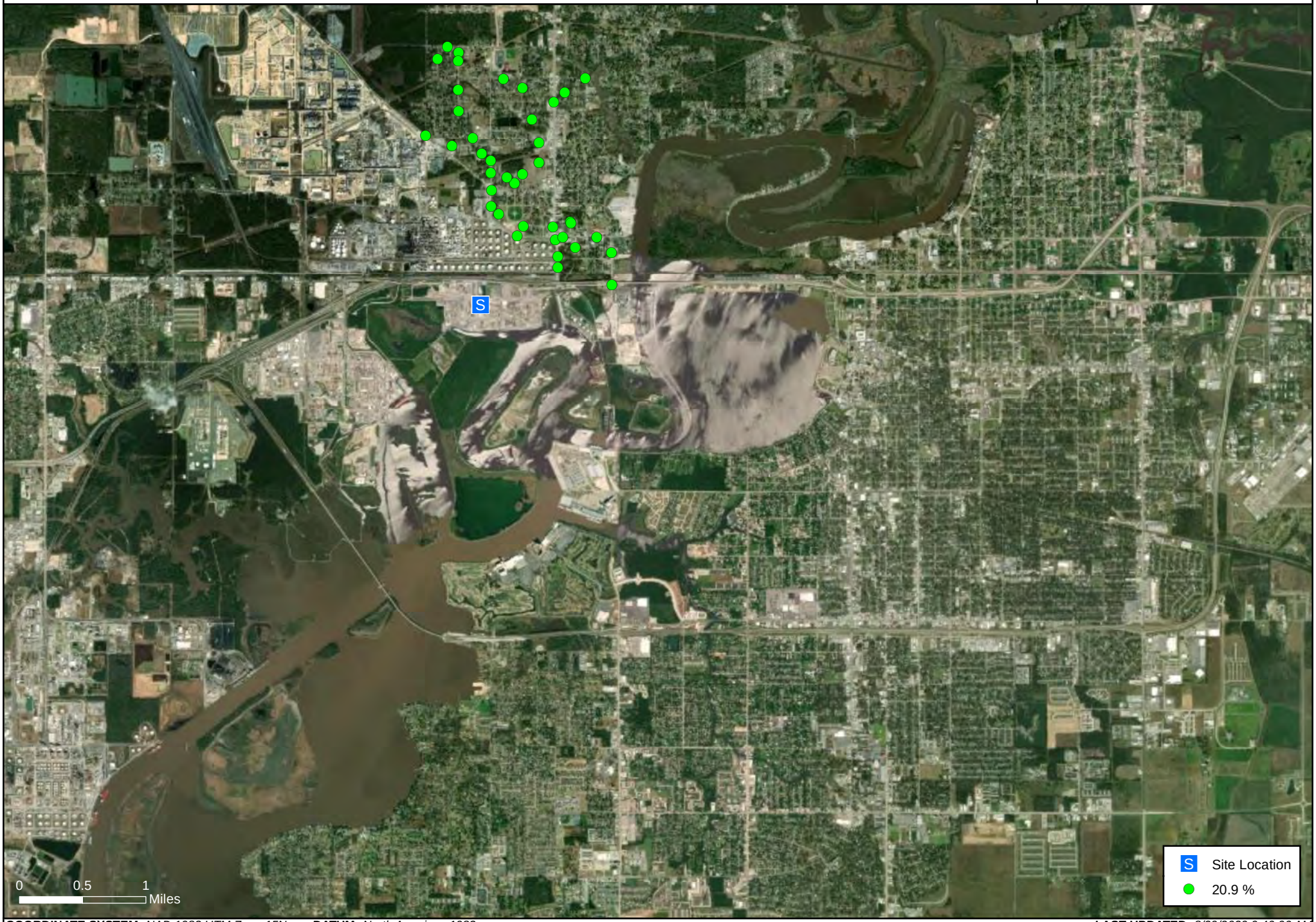


COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 9:31:15 AM*

Handheld Real-Time Community Monitoring Locations (O2)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 9:46:06 AM*

Handheld Real-Time Community Monitoring Locations (PM2.5)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

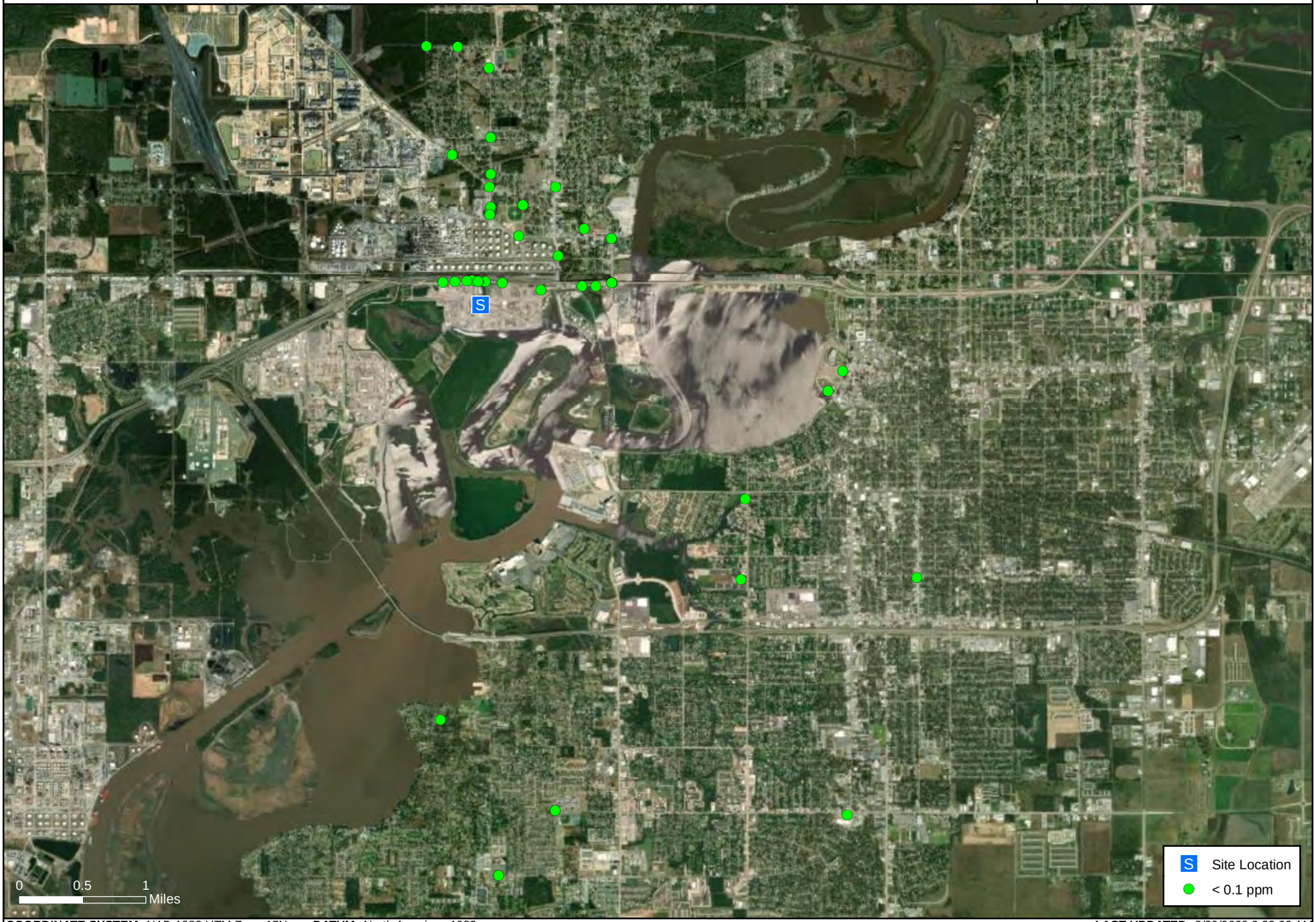
Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 9:27:44 AM*

Handheld Real-Time Community Monitoring Locations (SO2)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu

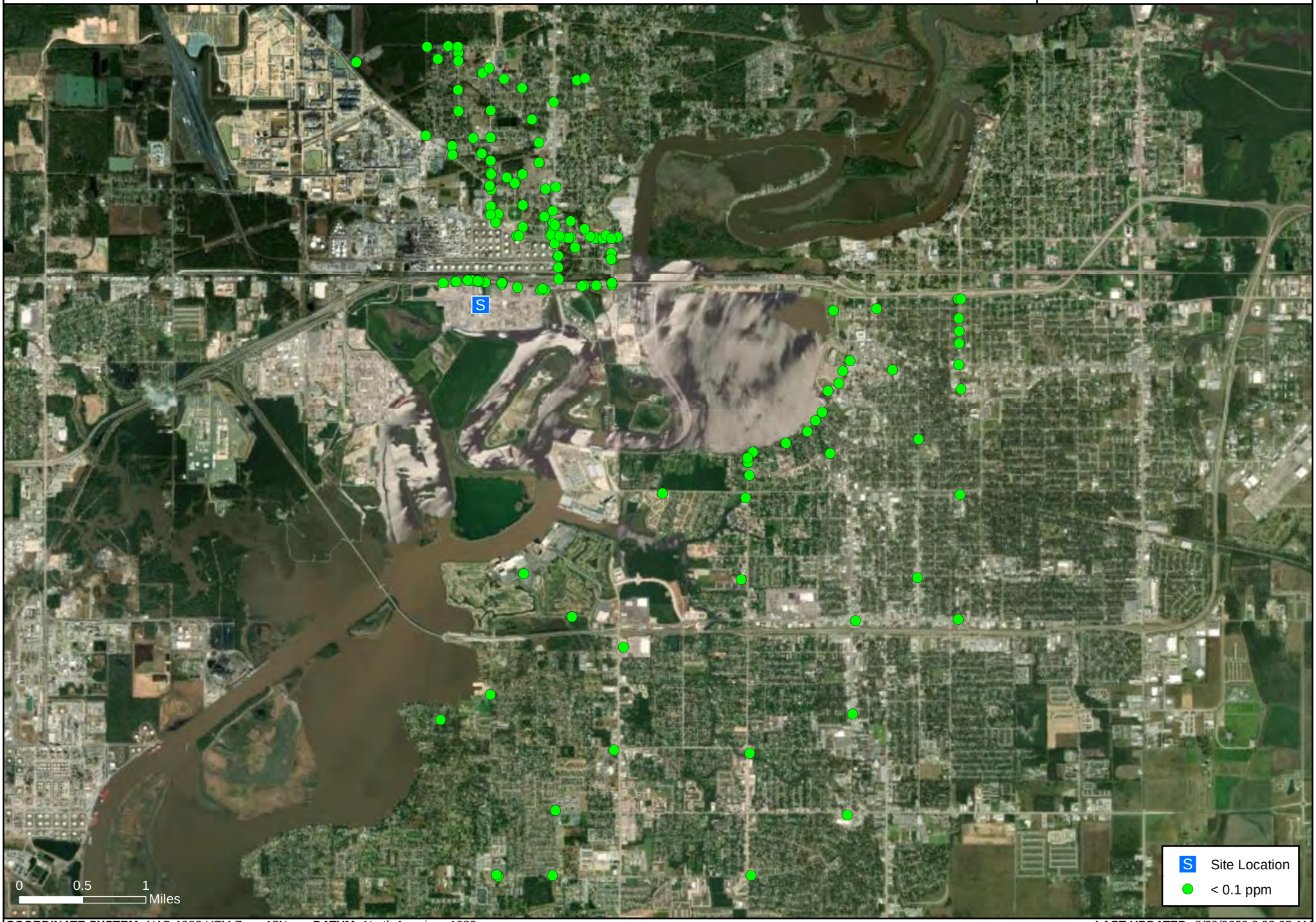


COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 9:30:00 AM*

Handheld Real-Time Community Monitoring Locations (VOCs)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 9:33:05 AM*

Handheld Real-Time Work Area Monitoring Locations (Cl2)

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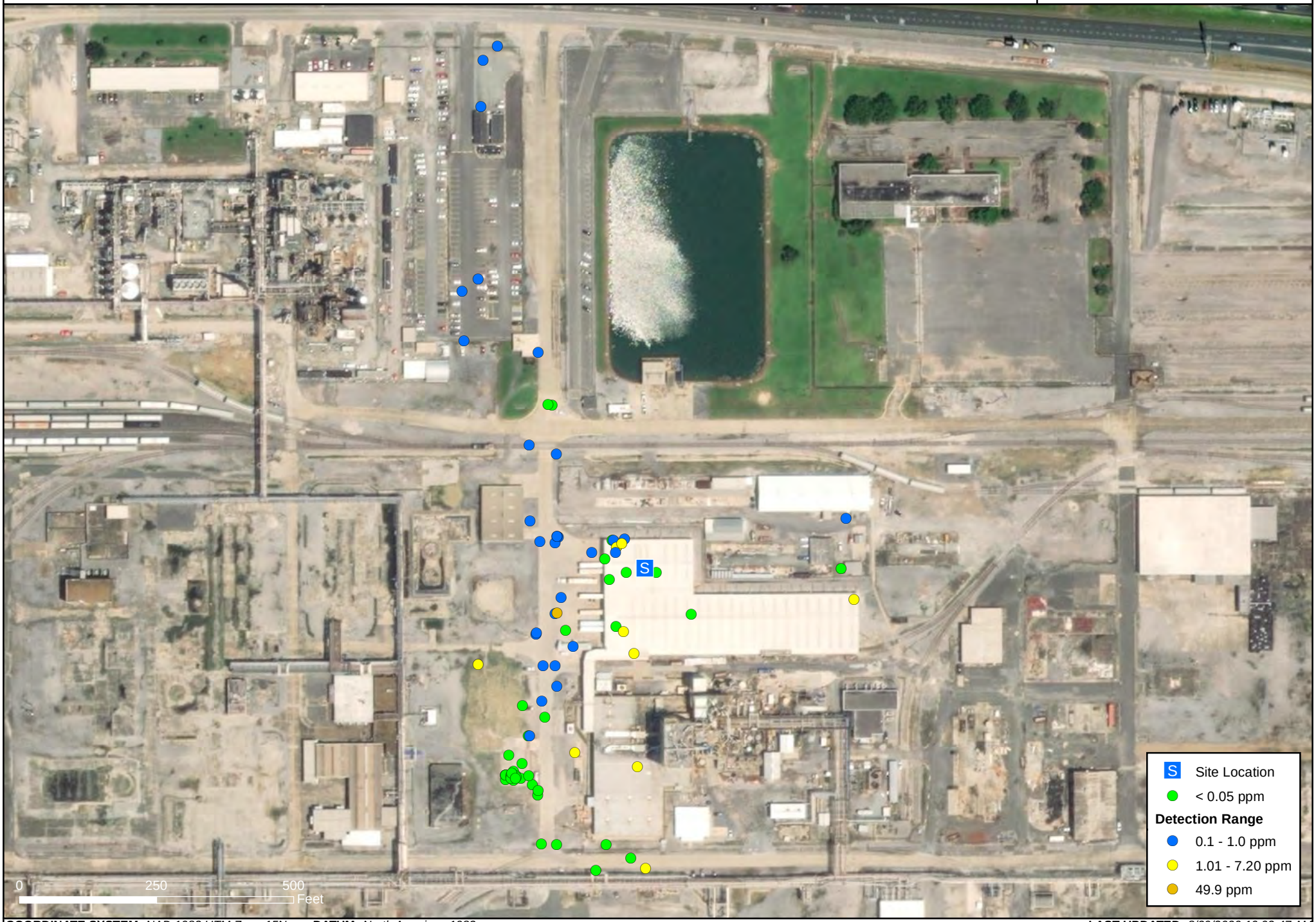
Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu



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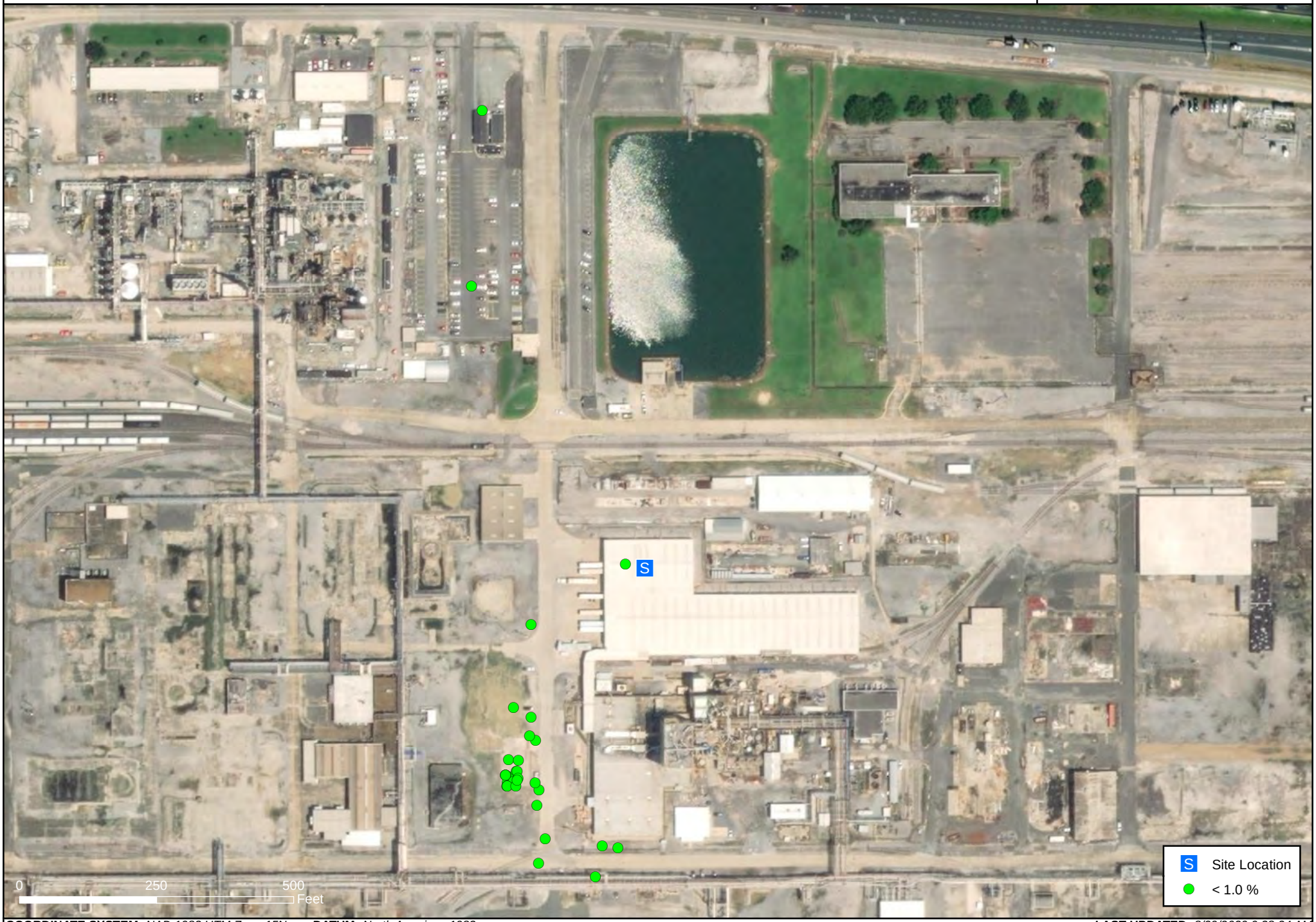
LAST UPDATED: *8/29/2020 10:02:47 AM*

Handheld Real-Time Work Area Monitoring Locations (%LEL)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu



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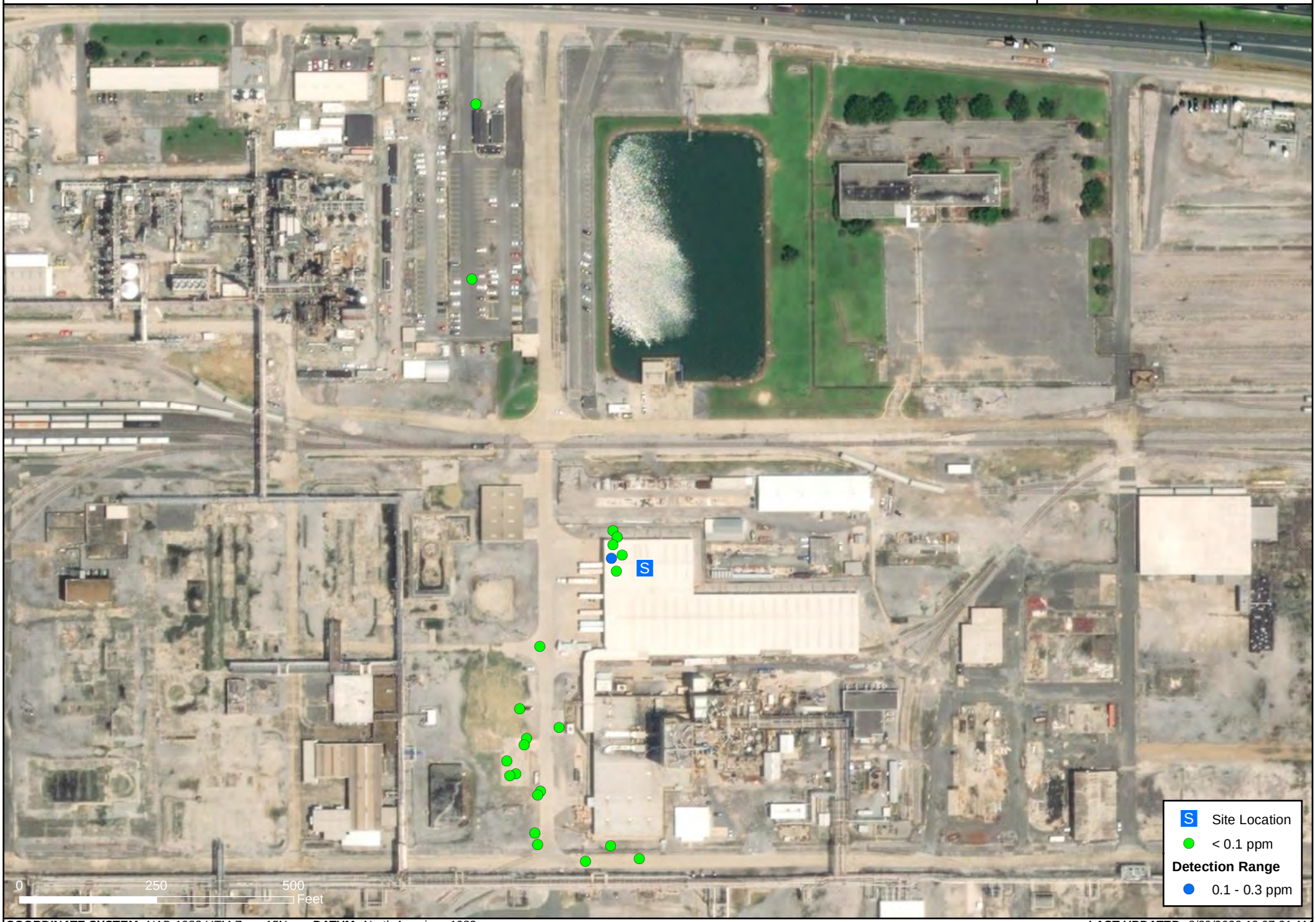
Handheld Real-Time Work Area Monitoring Locations (NO2)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu

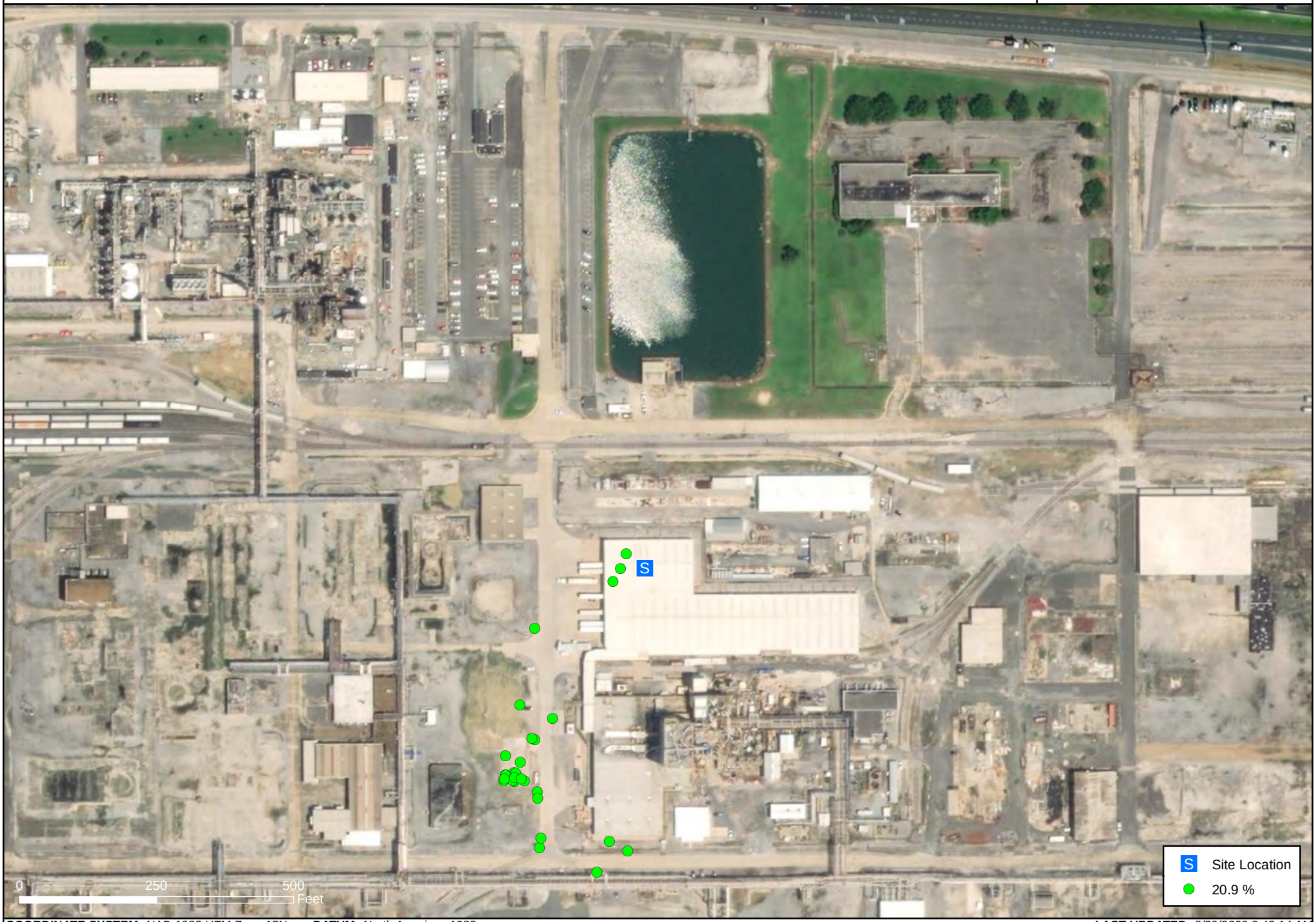


COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 10:07:21 AM*

Handheld Real-Time Work Area Monitoring Locations (O2)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu



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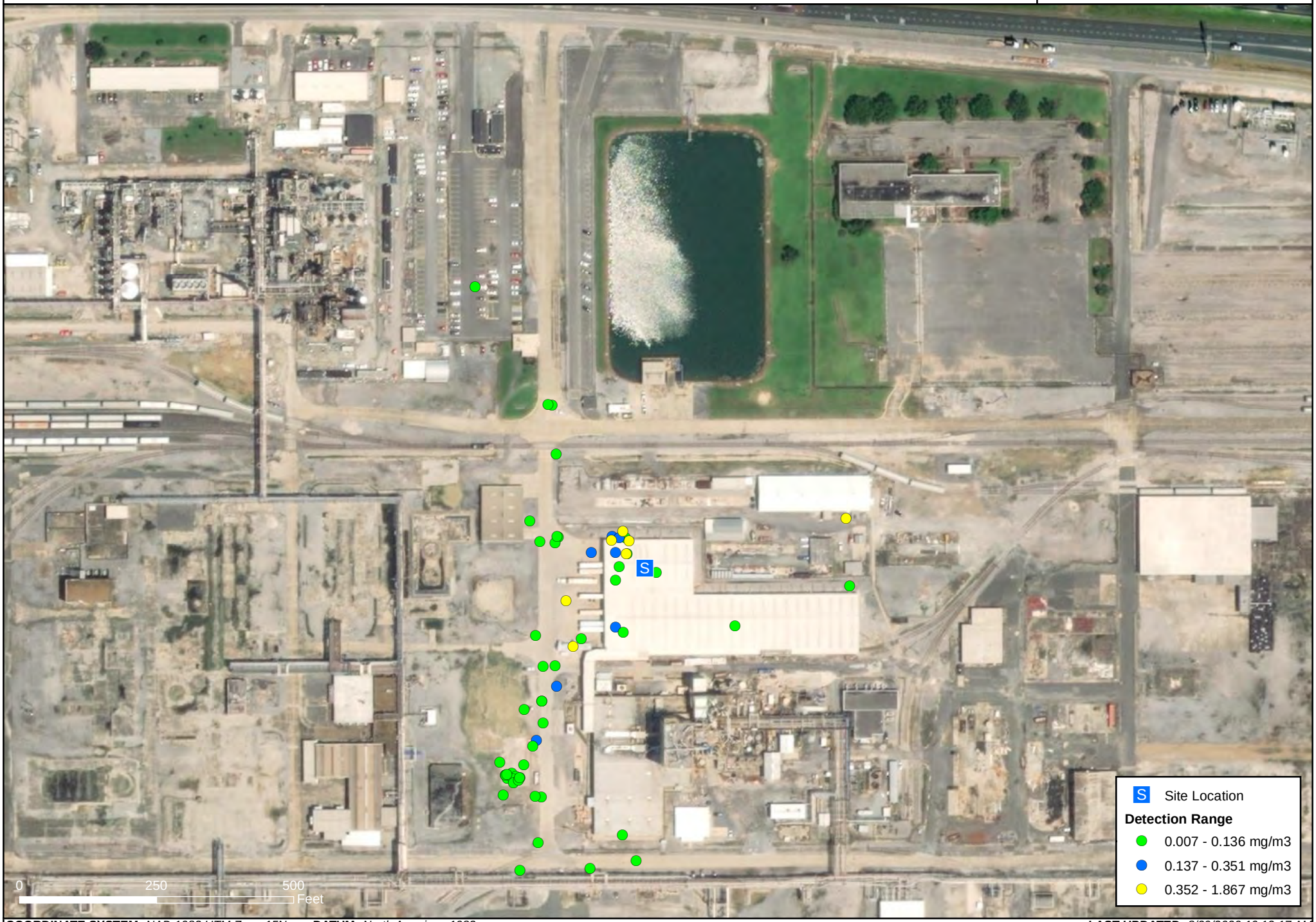
Handheld Real-Time Work Area Monitoring Locations (PM2.5)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu



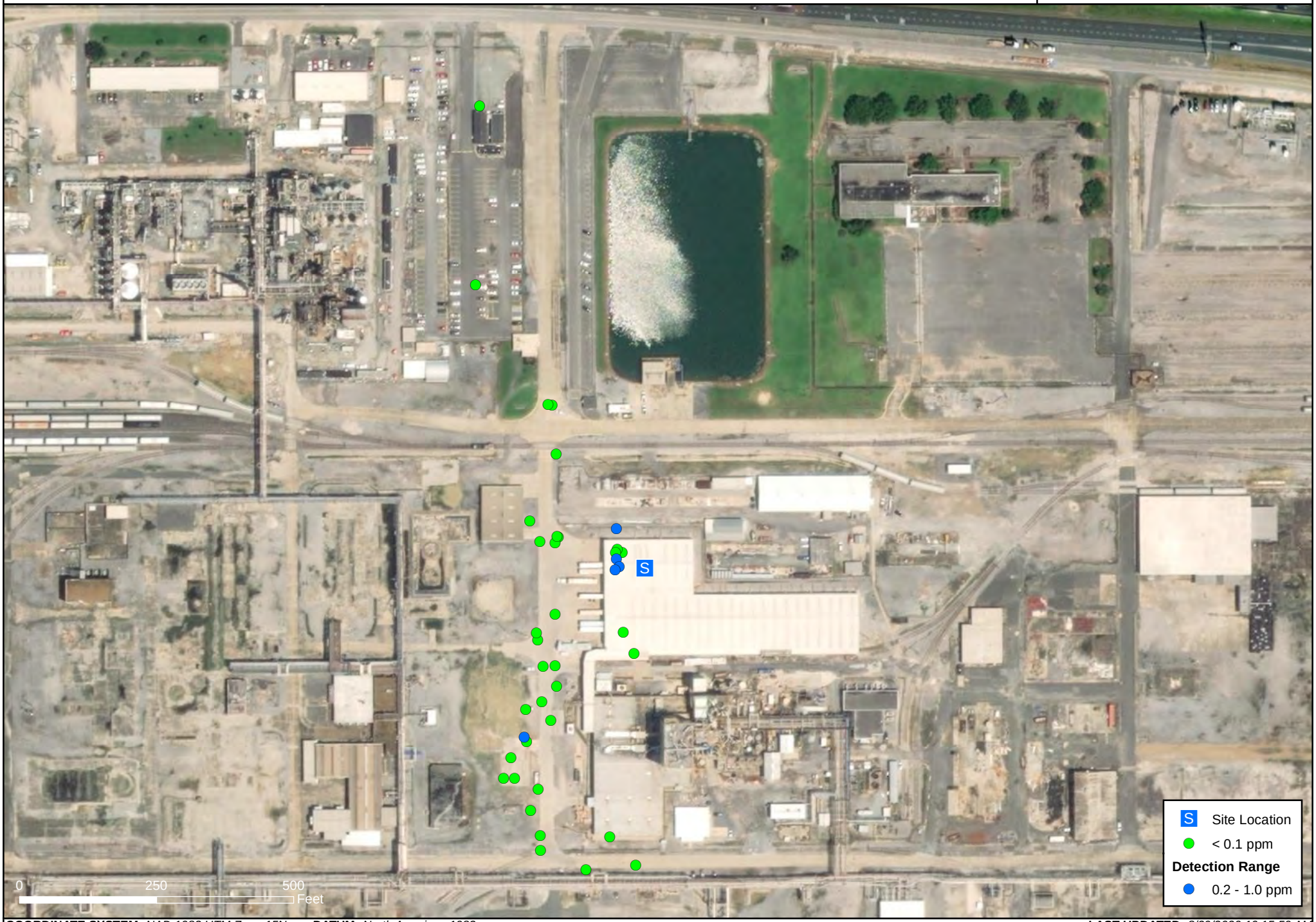
COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983*

LAST UPDATED: *8/29/2020 10:12:17 AM*

Handheld Real-Time Work Area Monitoring Locations (SO2)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu

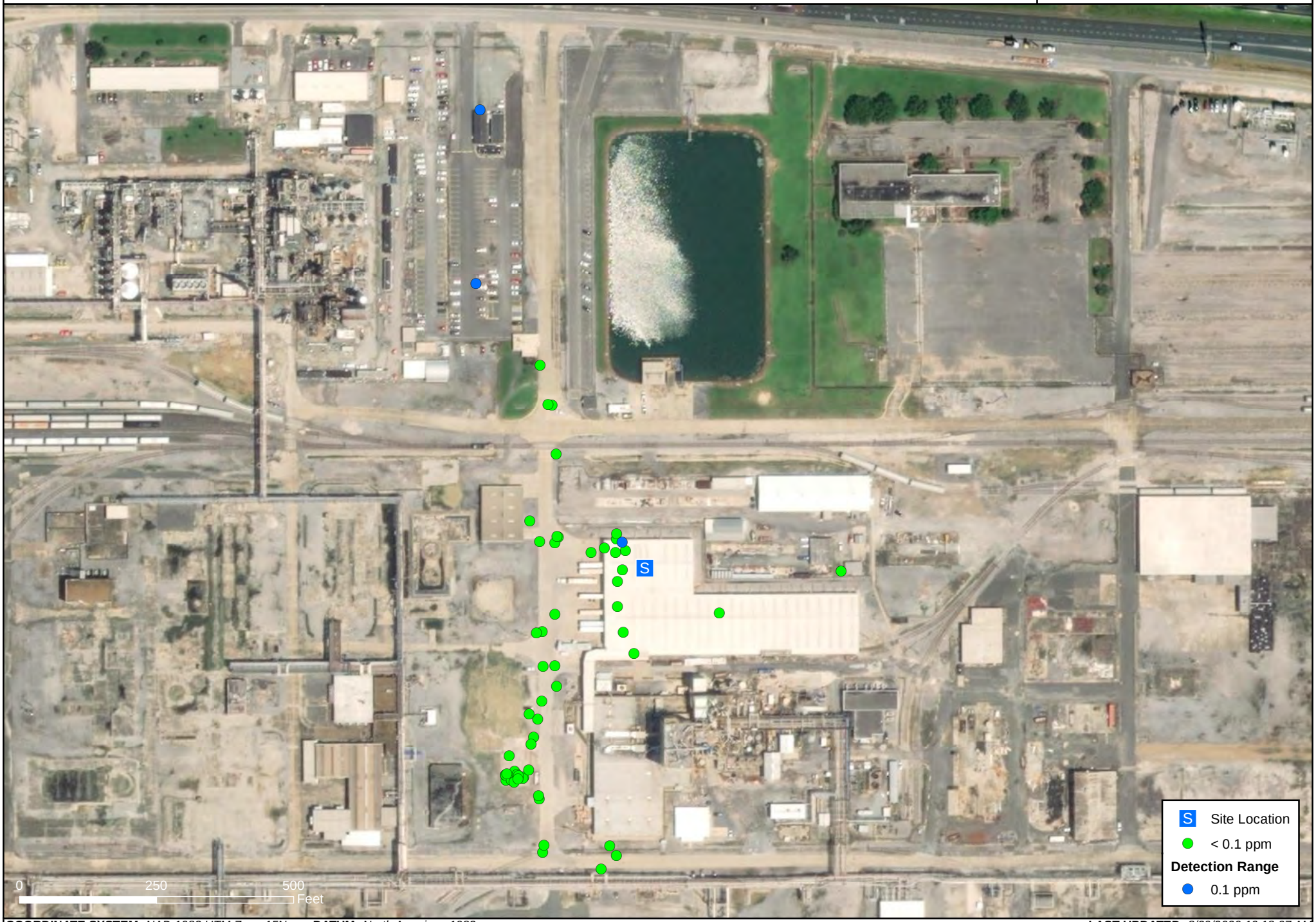


COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 10:15:59 AM*

Handheld Real-Time Work Area Monitoring Locations (VOCs)

BioLabs Facility Fire l Westlake, LA | 8/28/2020 06:00 - 8/29/2020 06:00 CST

Project:113436
Client: BioLab
City: Westlake, LA
Parish: Calcasieu



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* **DATUM:** *North American 1983* **LAST UPDATED:** *8/29/2020 10:18:07 AM*

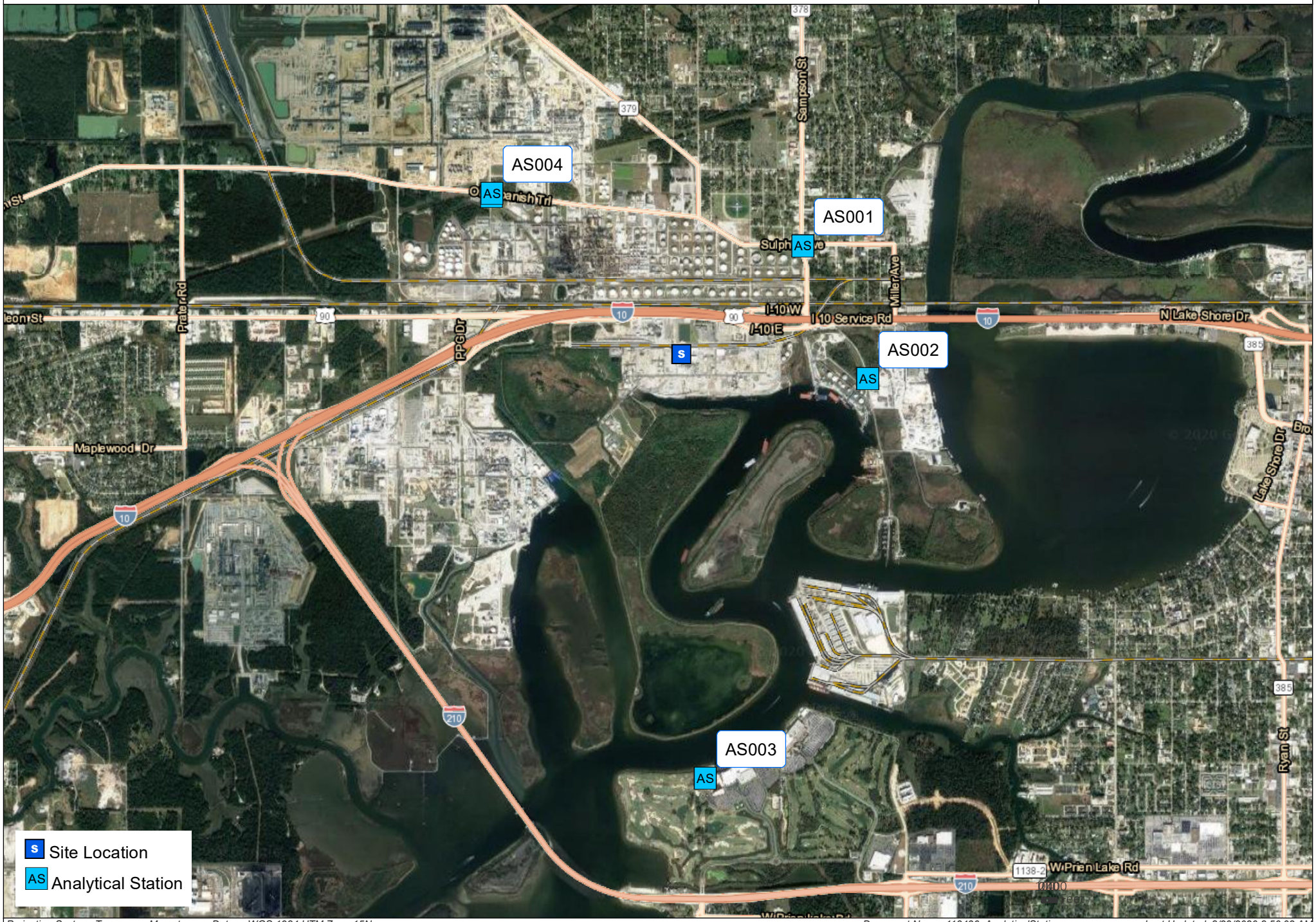
Attachment B

Analytical Air Sampling Locations

BioLabs Fire Analytical Stations

0 0.5 1 2 Miles

Project: 111346
Client: BioLab
City: Westlake, LA
Parish: Calcasieu



Projection System: Transverse Mercator Datum: WGS 1984 UTM Zone 15N Document Name: 113436_AnalyticalStations Last Updated: 8/29/2020 8:50:02 AM

*GPS Coordinates are Approximate

Attachment C

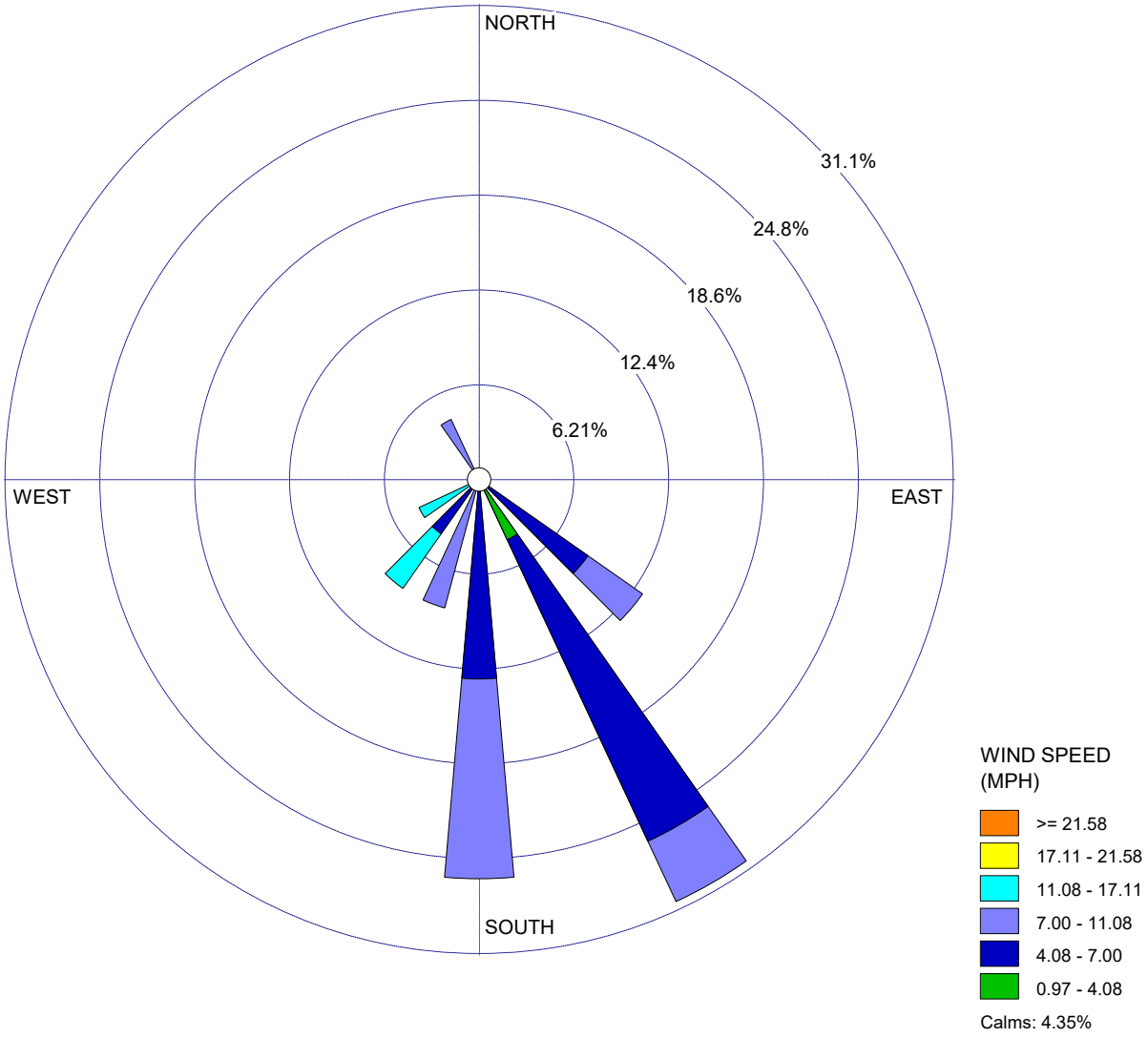
Meteorological Conditions

WIND ROSE PLOT:

Station #CHENNAULT INTL STATION

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 8/28/2020 - 07:00** **End Date: 8/29/2020 - 05:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **4.35%**	TOTAL COUNT: **23 hrs.**	
	AVG. WIND SPEED: **6.43 MPH**	DATE: **8/29/2020**	PROJECT NO.: **113436**